

CLAIMS

1       1. A water dispenser, comprising:

2           a) a cabinet having upper and lower end portions and an  
3           interior;

4           b) the upper end portion of the cabinet having a cover with  
5           an opening for receiving and holding a bottle of water to be  
6           dispensed;

7           c) reservoir contained within the cabinet, the reservoir  
8           containing water with a water surface;

9           d) one or more spigots in fluid communication with the  
10          reservoir for dispensing water, each spigot having a manually  
11          operable valve handle that opens the spigot to dispense water from  
12          the spigot;

13          e) a refrigeration system for cooling water within the  
14          reservoir;

15          f) a diffuser for emitting bubbles into the reservoir, said  
16          diffuser being contained within the reservoir;

17          g) an ozone generator housing supported next to the housing,  
18          said housing having an ozone generator inside the housing and air  
19          flow lines for transmitting air to and from the housing interior;

20          h) a timer that activates the ozone generator for a selected  
21          time interval and then deactivates the ozone generator after the  
22          selected time interval expires, said timer activating said ozone  
23          generator.

1       2. The water dispenser of claim 1 wherein ozone is generated  
2       by the generator responsive to operation of one of the spigot  
3       valves.

1       3. The water dispenser of claim 1 wherein the ozone  
2       generator is activated when the spigot handle is manually operated.

1       4. The water dispenser of claim 1 wherein the spigot has an  
2       electrical switch that is activated when the handle is operated,  
3       the switch being coupled to the ozone generator.

1       5. The water dispenser of claim 1 wherein the reservoir  
2 includes a generally vertical sidewall and the diffuser ring is  
3 positioned to discharge bubbles against the sidewall so that the  
4 sidewall is scrubbed with ozone bubbles during use.

1       6. The water dispenser of claim 1 wherein the ozone  
2 generator generates sufficient ozone to sterilize the water in the  
3 reservoir by bubbling air upwardly a distance of just a few inches.

1       7. The water dispenser of claim 1 further comprising means  
2 for enabling the ozone generator to continue to generate air flow  
3 into said ozone generator housing and air diffuser via first and  
4 second air flow lines for selected time after the ozone generator  
has been deactivated.

1       8. The water dispenser of claim 1 further comprising a  
2 transformer for generating high voltage electricity for the ozone  
3 generator.

1       9. The water dispenser of claim 1 wherein the replenishing  
2 means includes a central water inlet and the diffuser ring is  
3 spaced horizontally away from the water inlet.

1       10. A bottled water dispenser, comprising :

2       a) a cabinet having an interior having a water dispensing  
3 system that includes a reservoir for holding water to be dispensed;

4       b) the water dispensing system including a valved spigot on  
5 the cabinet for valving the flow of water to be dispensed from the  
6 reservoir, said spigot having a manually operable handle;

7       c) a refrigeration system for cooling water within the  
8 reservoir;

9       d) an ozone generator housing supported by the cabinet, said  
10 housing having an ozone generator inside the housing and air flow  
11 lines for transmitting air to and from the housing interior;

12       e) a blower for generating air flow through the housing;

13       f) a first air flow line connecting the blower and the

14 housing interior;  
15 g) a second air flow line connecting the housing interior  
16 with the water dispensing system; and  
17 h) the spigot having a switch that activates the ozone  
18 generator for a selected time interval when the handle is  
19 depressed.

1 11. The water dispenser of claim 10 wherein the diffuser ring  
2 is positioned around the side of the reservoir at the bottom of the  
3 reservoir.

12. The water dispenser of claim 10 wherein the diffuser ring  
is generally circular.

13. The water dispenser of claim 10 wherein the reservoir has  
a center portion and the diffuser ring has openings positioned to  
direct air emissions from the center portion of the reservoir.

14. The water dispenser of claim 10 wherein the reservoir  
includes a generally vertical sidewall and the diffuser ring is  
positioned to discharge bubbles against the sidewall so that the  
sidewall is scrubbed with ozone bubbles during use.

15. The water dispenser of claim 10 wherein the ozone  
generator generates sufficient ozone to sterilize the water in the  
reservoir by bubbling air upwardly a distance of just a few inches.

16. The water dispenser of claim 10 further comprising means  
2 for enabling the ozone generator to continue to generate air flow  
3 into said ozone generator housing and air diffuser via first and  
4 second air flow lines for selected time after the ozone generator  
5 has been deactivated.

17. The water dispenser of claim 10 further comprising a  
transformer for generating high voltage electricity for the ozone  
generator.

1       18. The water dispenser of claim 10 wherein the replenishing  
2 means includes a central water inlet and the diffuser ring is  
3 spaced horizontally away from the water inlet.

4       19. A cooled water dispenser, comprising:

5           a) a cabinet having a contained water dispensing system that  
6 includes a water source and a dispensing spigot;

7           b) a refrigeration system for cooling water contained in the  
8 water dispensing system;

9           c) an ozone generator housing supported by the cabinet, said  
10 housing having an ozone generator inside the housing and air flow  
11 lines for transmitting air to and from the housing interior;

12           d) a blower for generating air flow;

13           e) a first air flow line connecting the blower and the  
14 housing interior;

15           f) a second air flow line connecting the housing interior  
16 with the water dispensing system; and

17           g) means for adding ozone to the water dispensing system  
18 when the spigot is operated, said means including the ozone  
19 generator, blower and flow lines.

1       20. The water dispenser of claim 19 wherein the diffuser ring  
2 is positioned around the side of the reservoir at the bottom of the  
3 reservoir.

1       21. The water dispenser of claim 19 wherein the diffuser ring  
2 is generally circular.

1       22. The water dispenser of claim 19 wherein the reservoir has  
2 a center portion and the diffuser ring has openings positioned to  
3 direct air emissions from the center portion of the reservoir.

1       23. The water dispenser of claim 19 wherein the reservoir  
2 includes a generally vertical sidewall and the diffuser ring is  
3 positioned to discharge bubbles against the sidewall so that the

4 sidewall is scrubbed with ozone bubbles during use.

1        24. The water dispenser of claim 19 wherein the ozone  
2 generator generates sufficient ozone to sterilize the water in the  
3 reservoir by bubbling air upwardly a distance of just a few inches.

1        25. The water dispenser of claim 19 further comprising means  
2 for enabling the ozone generator to continue to generate air flow  
3 into said ozone generator housing and air diffuser via first and  
4 second air flow lines for selected time after the ozone generator  
5 has been deactivated.

1        26. The water dispenser of claim 19 further comprising a  
2 transformer for generating high voltage electricity for the ozone  
3 generator.

1        27. The water dispenser of claim 19 wherein the replenishing  
2 means includes a central water inlet and the diffuser ring is  
3 spaced horizontally away from the water inlet.

1        28. A method of sanitizing a cooled water dispenser having  
2 a cabinet with water supply and a refrigeration system that cools  
3 the water supply, and wherein an operable spigot on the cabinet  
4 enables water to be dispensed from the cabinet and its water supply  
5 comprising the steps of:

- 6        a) using the refrigeration system to cool the water supply;
- 7        b) generating ozone with an ozone generator;
- 8        c) collecting the generated ozone inside of an ozone  
9        generator housing;
- 10       d) transmitting ozone from the ozone generator housing to  
11       the water supply so that bubbles rise upwardly in the reservoir;
- 12       e) activating the ozone generator with the spigot handle  
13       when the spigot handle is operated to dispense water from the water  
14       supply.
- 15       g) deactivating the ozone generator and the blower after  
16       water in the reservoir has been sanitized.

1       29. The method of claim 28 further comprising the step of  
2       spacing the diffuser from the bottle neck so that ozone from the  
3       diffuser does not enter the bottle.

1       30. The method of claim 28 wherein the step "g" precedes  
2       steps "b" through "f".

1       31. The method of claim 28 wherein a controller  
2       simultaneously activates the ozone generator and deactivates the  
3       refrigeration system.

1       32. The method of claim 28 wherein the refrigeration system  
2       is deactivated before the ozone generator is activated.

1       33. The method of claim 28 wherein the refrigeration system  
2       is deactivated and the blower activated at about the same time.

1       34. The method of claim 28 further comprising the steps of  
2       deactivating the blower and activating the refrigeration system  
3       after step "i".

1       35. The method of claim 28 wherein bubbles rise upwardly a  
2       distance of between about two and ten inches.

1       36. The method of claim 28 wherein bubbles rise upwardly a  
2       distance of between about four and eight inches.

1       37. The method of claim 28 wherein the ozone generated in  
2       step "b" is spike ozonation that has a duration of between about  
3       one and five minutes.

1       38. The method of claim 28 wherein the ozone generated in  
2       step "b" is spike ozonation that has a duration of between about  
3       two and three minutes.

1       39. The method of claim 28 wherein the ozone generated in  
2 step "b" is spike ozonation that has a duration of between about  
3 one and three minutes.

1       40. An ozone generator tube comprising:

2       a) a glass tube having an outer surface and an inner  
3       elongated open ended bore with an inner diameter;  
4       b) an air pump connected to the glass tube for transmitting  
5       air to the tube bore;  
6       c) a pair of metallic foil electrodes mounted upon the outer  
7       surface of the glass tube and at spaced apart positions, one of the  
8       metal foil electrodes being a part of positive electrode, the other  
9       being a part of a negative electrode;  
10       d) an elongated metallic member that occupies at least a  
11       part of the bore;  
12       e) a connection that connects the metallic member to one of  
13       the foil electrodes; and  
14       f) a source of electricity for supplying electricity to the  
15       electrodes.

1       41. The ozone generator tube of claim 1 wherein one of the  
2       metal foil electrodes has a shiny reflective surface that faces the  
3       glass tube.

1       42. The ozone generator tube of claim 1 wherein each of the  
2       metal foil electrodes has a shiny reflective surface that faces the  
3       glass tube.

1       43. The ozone generator of claim 40 wherein the glass tube  
2       has a generally cylindrical outer surface.

1       44. The ozone generator of claim 40 wherein the open ended  
2       bore is generally cylindrically shaped.

1       45. The ozone generator of claim 40 wherein the elongated  
2       metallic member has a generally linear portion that defines a

3 majority of its length.

1 46. The ozone generator of claim 40 wherein the elongated  
2 member has a bend at one end portion that is positioned next to one  
3 end portion of the tube.

1 47. The ozone generator of claim 40 wherein the glass tube  
2 is of a Pyrex glass material.

1 48. The ozone generator of claim 40 wherein at least one of  
2 the metal foil electrodes is adhesive tape material that has an  
3 adhesive surface enabling adhesion to the glass tube.

1 49. The ozone generator tube of claim 48 wherein one of the  
2 metal foil electrodes has a shiny reflective surface that faces the  
3 glass tube.

1 50. The ozone generator tube of claim 48 wherein each of the  
2 metal foil electrodes has a shiny reflective surface that faces the  
3 glass tube.

1 51. An ozone generator tube comprising:

2 a) a glass tube having an outer surface and an inner  
3 elongated open ended bore with an inner diameter;

4 b) an air pump connected to the glass tube for transmitting  
5 air to the tube bore;

6 c) a pair of metallic foil electrodes mounted upon the outer  
7 surface of the glass tube and at spaced apart positions, one of the  
8 metal foil electrodes being a part of positive electrode, the other  
9 being a part of a negative electrode;

10 d) an elongated metallic member having a diameter smaller  
11 than the inner diameter of the glass tube so that there is an air  
12 space in between the metallic member and the inner surface of the  
13 glass tube.

14 e) a connection that connects the metallic member to one of  
15 the foil electrodes; and

16           f)    a source of electricity for supplying electricity to the  
17   electrodes.

1           52. The ozone generator tube of claim 51 wherein one of the  
2   metal foil electrodes has a shiny reflective surface that faces the  
3   glass tube.

1           53. The ozone generator tube of claim 51 wherein each of the  
2   metal foil electrodes has a shiny reflective surface that faces the  
3   glass tube.

1           54. The ozone generator of claim 51 wherein the glass tube  
2   has a generally cylindrical outer surface.

1           55. The ozone generator of claim 51 wherein the open ended  
2   bore is generally cylindrically shaped.

1           56. The ozone generator of claim 51 wherein the elongated  
2   metallic member has a generally linear portion that defines a  
3   majority of its length.

1           57. The ozone generator of claim 51 wherein the elongated  
2   member has a bend at one end portion that is positioned next to one  
3   end portion of the tube.

1           58. The ozone generator of claim 51 wherein the glass tube  
2   is of a Pyrex glass material.

1           59. The ozone generator of claim 51 wherein at least one of  
2   the metal foil electrodes is adhesive tape material that has an  
3   adhesive surface enabling adhesion to the glass tube.

1           60. The ozone generator tube of claim 59 wherein one of the  
2   metal foil electrodes has a shiny reflective surface that faces the  
3   glass tube.

1           61. The ozone generator tube of claim 59 wherein each of the  
2 metal foil electrodes has a shiny reflective surface that faces the  
3 glass tube.